



## DEPARTMENT OF JOURNALISM, MEDIA AND COMMUNICATION

### A POSSIBILITY, A THREAT, A DENIAL?

How news robots affect journalists' work practices and professional identity

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Thesis:	15 hp
Course:	JU2603 Master thesis in Investigative Journalism
Level:	Second Cycle
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Supervisor:	Jenny Wiik
Examiner:	Orla Vigsö

# Abstract

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**Aim:** The aim of the thesis is to gather an understanding on how news robots have influenced and will influence journalists' work. This thesis also seeks to explain how journalists' attitudes towards news robots have changed after they started working with or side by side with news robots, and how news robots affect journalists' professional identity.

**Theoretical framework:** The findings of this thesis will be compared and reflected in relation to previous research results and analysed in the context of professional identity theories. To understand how news robots affect journalists' professional identity Mark Deuze's and Henrik Örnebring's theories, along with other relevant theories, on identity construction will be used as a framework to analyse the findings.

**Methodology:** Qualitative study was determined as the most relevant way to gather the information needed. Semi-structured interview was chosen as a method since in-person interviews give the respondents the possibility to answer the questions in their own words without pre-given options. Designing and conducting the interviews follows Steinar Kvale's theories on qualitative research.

**Conclusions:** Journalists use the same working methods as before but, due to news robots, they shift their focus from repetitive tasks to interviews, on the field work and analyses. News robots give journalists more time to work on news stories that would otherwise been left undone. They also increase both the quantity and quality of news articles. Working with news robots has changed journalists' attitudes from neutral and negative to positive. Based on the findings of this study and theories on professional identity, journalists' professional identity will in future lay mostly—if not totally—on ethics and skilful writing.

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# 1. Introduction

The use of news robots is on the rise as more and more media outlets all over the world are experimenting with algorithms and artificial intelligence (AI) technologies, implementing them into newsrooms. In the recent years, this development has found its way also to the Nordic countries' media scene. In the Nordic countries, as well as elsewhere, it is widely discussed what a news robot can and cannot do, highlighting the importance and relevance of journalists and their profession.

As always, new technology raises concern and provokes thought. During the latest years in Finland and Sweden professionals, university teachers and journalism students, among others, have been talking about automated journalism, and anticipating that the first news robots will hit media outlets "any day now". In these talks and anticipations, the development is usually seen as a challenge and a threat to the profession, employment and the purpose of journalism. But as Sweden's first news robot was under development already in 2014, news robots are no longer a thing of the future. After the first Swedish robot was taken into use in early 2015, many other media outlets soon followed and by the end of 2016 also Finland took its first news robot into use. By 2017, the first news robots have been archived and replaced, but the effect they have on journalists, their profession and journalism is irreversible.

This thesis investigates if the expectations of journalists have actualized and above all, how news robots affect journalists and thus journalism. This study looks at what kind of changes news robots have on journalists' profession and attitudes by interviewing twelve journalists who work with or side by side news robots. The research seeks to cover topics such as how journalists experience working with news robots, how news robots have affected journalists' work in practice, and what kind of effects these changes have on journalists' identity. Finnish and Swedish journalists were chosen as research subjects for practical reasons. These two countries, their journalists and news robots were chosen also because their media scenes, media outlets, news robots and journalism practices are like each other. In addition, the news robots of Finland and Sweden were taken into use approximately at the same time, and some of the news robots have a common developer and code.

This chapter firstly overviews the aim of this thesis, clarifying why this subject was chosen as a research topic and why it is important. Following this, the research questions and expected outcomes will be presented, outlining the purpose of this study. Lastly some limitations regarding this thesis are noted.

## **1.1. Aim**

As the use of news robots is on the rise, it is important to understand from early on how they affect journalists' work and identity. Knowing how news robot change journalists' perception of their work and how news robots affect the work in practice helps both media outlets and journalists in understanding how to deal with a changing work environment and profession.

The aim of the thesis is to gather an understanding of how news robots have influenced and will influence journalists' work. At the same time, this thesis also seeks to explain how journalists' attitudes towards news robots have changed after they started working with news robots, and how news robots affect journalists' professional identity. This thesis hopes to be of use to media outlets, AI developers, journalists, supervisors and other professionals in helping them understand how automation is used and can be used in journalism; how the use of it affects work practice; and how implementation of new technological methods could be done as smoothly as possible. Most of all this thesis seeks to answer the question of how—if at all—news robots affect journalists' work practices now and in the near future.

## **1.2. Research questions**

This thesis focuses on the effects that news robots have on journalists' practical work, considering also changes in journalists' attitudes and how these two affect the outcome of the news published. Some light is also shed on how journalists perceive their immediate future regarding news robots. Based on these points of interests the research questions are:

- How do news robots affect journalists' working methods?
- How do news robots affect journalists' use of time?
- How do news robots affect the quantity and quality of news articles?
- What kind of changes (if any) there has been in journalists' attitudes towards news robots?

### **1.3. Expected outcomes**

When looking at the results of similar research done in other countries, it is difficult—if not impossible—to predict if the changes caused by news robots are perceived in Finland and Sweden similar to previous studies, and whether journalists' attitudes towards automated journalism is positive, negative, both or neither. However, since the main principles of journalism and journalism practices are more or less the same around the globe (Deuze 2005), I expect the findings of this thesis to mimic the results for previous studies. They conclude, for example, that news robots free journalists from routine tasks allowing them to concentrate on work that requires human skills; that news robots save both time and money; and that news robots force journalists to reconsider their work practices.

But as automated journalism is a fairly new phenomenon and there is only a handful of studies done on it, I also expect to find out aspects that have not been presented before. Such results could, for example, answer questions like do journalists perceive news robots as a tool or a colleague, and concrete examples on the effects of news robots, change in attitudes, and in addition expectations and delusions that journalists have regarding news robots.

As this study concentrates on how these changes affect journalists' professional identity, the changes will be analysed and discussed in relation to theories regarding construction of professional identity. I expect to find out new information regarding journalists' identity construction now and especially in the future.

### **1.4. Limitations**

Researching the effects of an undergoing technological development is always a delicate task and thus it is worthwhile to consider some limitations regarding it. First of all, it must be taken into notion that when talking about news robots, different professionals—even the ones working with news robots—have varying attitudes and understandings of what a news robot actually is. As this study shows, the terminology between algorithm, automation, AI, computation, and news robot is easily combined and confused both by developers and users.

Another thing worth noticing is that this thesis is a qualitative, interview based study and that all in all thirteen interviews were conducted. These interviews do not represent the whole

Finnish and Swedish spectrum of opinions and experiences regarding news robots, and neither do they represent the official view of the media outlets whose representatives were interviewed. It is also worth noting that twelve out of thirteen respondents are men and thus the results of this thesis might limit only to expressing how men experience and perceive new robots, their future and professional identity. The results may also be limited due to the fact that a third of the respondents had at the time of the interviews very little experience with news robots.

In addition to the limitations based on respondents, it need to be taken into account that some of the news robots which are referred to in this thesis had at the time of the interviews recently been taken into use, and that news robots are under constant development. At the same time, other news robots had been in use for a longer period of time, thus giving more experience to some journalists. This also might explain some of the biggest differences in the respondents' answers.

## 2. Background

The first news robots were taken into use more than ten years ago. Looking back in history, this chapter first explains what news robots are, why they are used and what they can do. In the second section of this chapter these same topics will be covered in relation to news robots used in Finland and in Sweden.

The first journalistic content was automated in 2006. It was Thomson Reuters that announced that it would use algorithms to produce financial news stories for its website (Momus 2006 in van Dalen 2012). Ever since automation has made its way into the newsrooms in rising amounts, assisting journalists in various phases of the news production process (Örnebring 2010).

One of the biggest reasons to the need and will to develop automated journalistic content and news robots is the commercial pressures and higher profit expectations aimed at media outlets. As the trend is to lower the variable costs involved in news production (Deuze & Marjoribanks 2009), automation is a tempting, time and money saving way to reach these goals. Besides the financial aspects, the growth of automated journalism is also boosted by the technological developments that enable an increasing amount of accessible data – the big data (Flew et al. 2012). The amount of this data, that is both structured and unstructured, is estimated to double every 40 months (Latar 2015) meaning that the quantity of information is simply too big for humans to deal with and for traditional data processing software to make sense of (Snijders, Matzat & Reips 2012). However, media outlets and journalists—among others—want to be able to use this information and that is where automation and news robots are introduced into the game.

Already now some commercial companies have developed AI algorithms that write journalistic stories without any human involvement (Latar 2015). Machine-written news have even led to claims that a robot written story will win a Pulitzer Prize by year 2018 (Marshall 2013). This kind of fast development and prediction of the future has caused that in recent years there has been an increasing and heated discussion about the use of big data and automated content in media scene (Anderson 2012). This is understandable since it has been estimated that by years 2020–2025 most of all journalistic stories will be written totally by



news robots (Latar 2015) leading journalists of today to reconsider their own role and core skills (van Dalen 2012). But despite that journalism professionals have a very real concern regarding their own profession and the future of journalism, most of the research done on automated journalistic content has focused on audience's perceptions, on societal or economic implications, and on ethics.

Thus, there is still not that much research on how journalists perceive their own role and profession, although a few researchers have focused on news robots and the journalists themselves as research objects (Thurman, Doerr & Kunert 2017). These researches have shown that journalists tend to react to technological innovations in complex ways (Carlson 2007a; Carlson 2007b & Powers 2012), and that journalists have often shown to be a conservative community which protects its profession from external influences (Lahav & Reich 2011). The mass adoption of any new, impactful technology is preceded by mass confusion and dissent. In the opinion of journalists nothing seems to be as potentially disruptive to the practice of journalism as automated journalism (Carlson 2014). The biggest objection focuses on a couple principal concerns: the risks caused by unchecked algorithmic news generation, and the growing gap in skill sets required to manage this new specialty area. (AP n.d.) A rising concern is also that automated journalism is inclined towards gathering more information rather than better information (Anderson 2011).

Besides the concerns mentioned above another major worry is that there will be workflow disruptions caused by automated journalism. This is due to the fact that technological changes alter the way in which the journalistic practice is imagined and how it is conducted (Gynnild 2014). Implementing any new system will disrupt the traditional existing workflow of a newsroom, and even if the changes are not drastic, it is important to note the effects they have when implementing automation into newsrooms (AP n.d.). The ability to identify these changes at an early stage is crucial as it helps both media outlets and journalists in adapting (Latar 2015). It also helps them in making the possibly needed, appropriate policy changes on time. These are the reasons to why this thesis concentrates in researching how automated journalism—news robots—affect the work of journalists.

## 2.1. News robots in general

In this thesis, automated journalism and news robots are regarded as the same thing. Besides these two terms, this thesis includes notions of AI.

### *What*

This thesis follows Carlson's (2014) definition of automated journalism as algorithmic processes that convert data into narrative news texts with limited to little or no human intervention. Automated journalism refers to forms of algorithmic, social scientific, and mathematical processes and systems that are used to produce news (Young & Hermida 2015). An everyday example of algorithms is that companies such as Facebook, Google, Twitter and Netflix use algorithms to make sense of the ever-increasing amount of data and suggest posts, movies or search results based on the information the algorithms provide. Thus, everyone who uses the internet are in touch with algorithms in one way or another. (Schmidt 2015.)

Besides being an algorithm, automated journalism is also described as an activity of journalism including information gathering, organizing and reasoning, communication and presentation using applications of computing and computational thinking (Diakopoulos 2011). Furthermore, news robots are able to draw connections between pieces of information and filter it based on relevance or other criteria (Schmidt 2015), and they can be fully customized to fit any kind of voice, style and tone (Ghuman & Kumari 2013).

News robots are the most common way to use and present automated journalism. News robots are programmed pieces of software that are designed to consume massive amounts of data and process it into easy consumable pieces of information. They are also able to generate textual and visual journalistic content automatically and, to some extent, even autonomously meaning that there is no need for human involvement (Ghuman & Kumari 2013).

## *Why*

Media outlets are experimenting increasingly with news robots, using computer programs to transform data into news stories or news stories into multimedia presentations (Kent 2015). Automated journalism is used for example in sports and financial journalism where news robots automatically generate and publish thousands of news stories without human intervention, at little or no additional cost (van Dalen 2012). Using structured data, algorithms behind the automation can generate news reports also on crime statistics. (Thurman, Doerr & Kunert 2017.)

As media outlets are suffering from a shrinking advertising base, decreased income, and fragmenting audiences (Picard 2010 & Anderson 2012) reducing the costs of labour is not anything new. However, with the increasing use of automation and algorithms, it has acquired new dimensions (Thurman, Doerr & Kunert 2017). News robots give a tempting and easy solution especially since research show that automation frees for example editorial resources (von Krogh 2016) as automation replaces or augments some core journalistic skills such as accuracy and speed (Cleary & Cochie 2011).

Besides freeing editorial resources automation also limits costs of journalistic text production and leads to efficiency gains (Latzner et al. 2016). This is an assessment shared by many researchers, and for example Henrik Örnebring (2010) writes of how technology “relieves” journalists of work that can be done by relatively inexpensive workers – the news robots.

## *How*

Automated journalism is based on two pillars: a computer software that automatically extracts new knowledge from huge data silos, and algorithms that automatically convert this knowledge into readable or visual stories (Latar 2015). Thus, news robots can be divided into fully autonomous and partially autonomous news robots. Fully autonomous news robots gather data, process and analyse it, write a news article and publish it without any interference from humans. Partially autonomous news robots do the same thing as fully autonomous news robots, but instead of publishing the news article automatically, it gives the article for a journalist to go through. The journalist can then

either correct and/or complement the article or decide to publish the article as it is. In short, partially automated news robots give the last stage of the otherwise fully automated process to a journalist.

The majority of the news robots nowadays use templates in creating news articles meaning that a developer and/or journalist has created text samples which the robot complements with information. Even though not yet in use, there are also news robots under development that work on natural language generation (NLG). Simply put, an NLG system is like a translator that converts data into a readable and understandable text. In automated journalism, this technology means that a news robots would be able to write coherent and clear news articles “from scratch” without humans giving them templates to work on. (Bateman & Zock 2012.) Common to all present news robots is that one news robot concentrates on one kind of news writing for example only sport news, financial news or weather news.

## **2.2. News robots in Finland and Sweden**

This thesis concentrates on the experiences of Finnish and Swedish journalists who have worked with or side by side with news robots. These two countries were chosen as research objects because the news robots of Finland and Sweden were taken into use approximately at the same time, and some of the news robots have a common developer and code. The news robots researched and presented in this study are either partially or fully autonomous, and the news articles they produce are largely based on text templates created by developers and/or journalists. Specifying which Finnish and Swedish media outlets use news robots is difficult since the definition of a news robot and automated journalism is so diverse. Even though the technology used is the same, some media outlets say they use computer programs while others talk about news robots. However, at least three Finnish media outlets (Helsingin Sanomat, Yleisradio and Vasabladet) and two Swedish media outlets (MittMedia and TT Nyhetsbyrå) use news robots on a regular basis.

Based on the background information gathered from the respondents who participated in this thesis, media outlets aim to develop news robots as complementing tools for journalists and news desks. The purpose of the news robots in both Finland and Sweden is not to dismiss

newsroom's personnel but to help them in their everyday work while at the same time decreasing costs and saving time. Another incentive is the ability to produce more news stories. A common perception is that if a news robot can do it, it should do it.

Between Finland and Sweden, and between different media outlets there are some differences in how the role of the news robots is perceived in relation to journalists. Some media outlets want to have them fully autonomous while others believe that partially autonomous news robots serve their needs better.

In Sweden, the first news robot was under development in 2014 and it was taken into use in early 2015. The present news robots in Sweden are used mainly to cover sports, financial and weather news. In Finland, the development of the first news robots started in late 2016 and it was taken into use the same year. The present news robots in Finland are mainly used to cover sports news and specific events, such as election results. All in all, there are now approximately ten news robots in use or under development in Finland and Sweden, and around 20 to 30 journalists working daily with news robots.

### 3. Theoretical framework

The findings of this thesis will be compared and reflected in relation to previous research results and analysed according to professional identity theories (see e.g. Caza & Creary 2016; Heinonen 1999; Deuze 2005, Wiik 2010). This chapter starts with presenting the results of earlier research, categorising them into four main themes: effects of using news robots, perceptions regarding news robots, the human advantage, and the future. Following this, the theoretical framework is presented in detail covering theories regarding definition and construction of professional identities.

#### 3.1. Previous studies

The findings of previous studies done in, for example, United Kingdom and United States of America concentrate on the work that news robots can do, and on how journalists perceive the news robot's abilities now and in the future.

##### *Effects of using news robots*

Previous studies show that automated journalism can produce basic commodity news allowing journalists to focus on more creative, analytical, and in-depth stories (van Dalen 2012; Montal & Reich 2016) that address areas of interests of their long-tail readers. When journalists are freed from routine tasks, like transcribing and manually poring over datasets, they can in addition to the previous mentioned concentrate on pursuing leads found through AI analysis (AP n.d.; Thurman, Doerr & Kunert 2017).

News robots are often presented as a possibility which is understandable considering the financial difficulties these organizations are experiencing (Montal & Reich 2016). Associated Press (n.d.) has calculated that the work of a news robot has freed up to 20 percent of its journalists' time (AP n.d.), and that the increased value and amount of the published content can be done with virtually no additional marginal costs (AP n.d.; Montal & Reich 2016; Thurman, Doerr & Kunert 2017).

### *Perceptions regarding news robots*

According to some studies (Latar 2015; Young & Hermida 2015) journalists perceive news robots merely as a tool enhancing the role of journalists rather than replacing them. When the news robots are perceived like this, they are less likely to be seen as a threat and rather an opportunity to enhance existing practice (Young & Hermida 2015). But concerns are also present as the more pessimistic journalists view the news robots as a real threat to their livelihood (Latar 2015).

Studies also show that some journalists have conflicting opinions about whether the technology would in fact at all help journalists for example in coping with the increasing amount of data. In addition, it has also been pointed out that the most sceptical journalists believe that automated journalism in its current form has limited possibilities, and that it is unlikely to fundamentally change the industry (Thurman, Doerr & Kunert 2017). XXX

### *The human advantage*

Studies find that journalists strongly believe that competition with news robots forces journalists to become better in tasks which only humans can do, such as interviewing. In addition, journalists also feel that humans have some important advantages in competing with the news robots such as creativity, analytical skills and personality (van Dalen 2012; Thurman, Doerr & Kunert 2017), and that news robots will never replace journalism (AP n.d.). This belief is presented well in Thurman's, Doerr's and Kunert's (2017) research. According to it journalists believe that some contextual factors, such as finding information from multiple sources, cannot be overtaken by news robots. They also present that using multiple sources is a characteristic of good journalism and that such sourcing often has to be done in the analogue world, by a real human being. They also conclude that a lot of the important and interesting information is being briefed off-the-record to journalists.

While some journalists rely on humans' insuperable skills, others believe that to be able to compete with news robots, journalists must understand the limitations of automated journalism and adapt their mode of operation to take advantage of these limitations

(Latar 2015). This means that in order to survive, journalists need to start thinking more like computer scientists. Not only would it help journalists in surviving the change, it would also contribute to producing quality automated journalism (Gynnild 2013).

### *The future*

How automated journalism will affect journalists in the future is strongly related to the similarities and differences between human and robot journalists. Also, the more and more commercialized business logic has its effect (van Dalen 2012). The studies furthermore show that there is distinguishable difference between how news robots are seen now and how they are imagined in the future (Latar 2015). Many journalists believe that in the future journalists will find it hard to compete with automatic comprehensive data collection and writing (Latar 2015).

As the coming age is characterized by the introduction of micro data collecting sensors embedded everywhere, Latar (2015) believes that journalists will find it difficult to compete against this emerging ecosystem of data collection. Some study results also state that that automated journalism inevitably runs up against existing journalistic practices and that its introduction forces journalists to confront assumptions regarding their work practices (Carlson 2014). Yet others do not see future as a fight but rather as a co-operation. In this scenario journalists and news robots work side by side, and articles will be partly computational and partly reworked by journalists (van Dalen 2012).

## **3.2. Relevant theories**

To understand how news robots affect journalists' professional identity Deuze's (2005) and Örnebring's (2013) theories, along with other relevant theories regarding professional identity, will be used as a framework to analyse the findings.

### **3.2.1. Definition and construction of professional identity**

Traditionally an individual was considered a professional only when he/she had completed a specific training, gained the needed certifications and credentials, and internalized the profession's values and norms (Wilensky 1964). But as these criteria are difficult to adapt to



the ever-evolving nature of journalism and labour of journalists, the Royal Commission of the Press UK stated in a report from 1977 that these requirements are inapplicable to journalism. The report says that “it is not realistic to expect journalism to become a profession in the sense that only people licensed by a national body at national level may practise” (Aldridge & Evetts 2003). Since then researchers have relaxed the criteria for classifying professional occupations (Benveniste 1987 and Ibarra 1999 in Caza & Creary 2016). Nowadays the term ‘profession’ is often used as an adjective rather than a noun, describing *how* individuals carry out their work—with knowledge and skill—rather than describing *what* kind of work they do (Caza & Creary 2016).

As the field of journalism is under constant change, so is the professional identity of journalists. Identity, and thus professionalism, is defined as the various meanings that are attached to a person by themselves and by others. In addition, it also includes meanings that individuals attach to themselves in relation to their work (Gecas 1982; Dutton et al. 1994 in Caza and Creary 2016). Scholars have two different approaches in their examination of the professional identity. The first approach looks at identity as something that explains how individuals view themselves in relation to their profession, while the second concentrates on understanding the meaning and construction of a professional identity. (Caza & Creary 2016.) This thesis concentrates on the last mentioned.

Understanding the evolving professional identities and how journalists think about themselves is important since professional identities affects and determines work related attitudes, moral decision-making and behaviour (Caza & Creary 2016). This in its turn affects how journalists do their job, what kind of news articles are being published, and lastly the whole profession of journalism. According to sociologist and anthropologist Pierre Bourdieu this transformation of the journalistic field matters because of the central position that journalism has in the society (Benson & Neveu 2005).

When talking about the change of journalism, journalistic profession and journalists’ identity the discussion cannot be limited to new technologies (Heinonen 1999), in this case news robots. We must take into consideration the changing practises of the profession too. Why? Because new practices raise new demands on journalists, affecting both professionalism and

the identity of journalists (Wiik 2009). As stated earlier, the term ‘professional’ is nowadays used to describe *how* the work is done, whereas professional identity indicates the type of work individuals does (Pratt et al. 2006). The professional identity is thus constructed in relation to the journalist’s profession or the organization they work for (Van Maanen & Barley 1984 in Caza & Creary 2016), and the building blocks of it can be categorized into three domains of legitimacy or justification (Örnebring 2013):

### *Expertise*

Journalists often choose to describe their expertise as something intuitive and tacit, such as having ‘a nose for news’. When describing their expertise, they refer to their writing skills; ability to extract and filter information; ability to present it to audiences in an understandable way; and the ability to analyse and put facts in contexts. According to Örnebring these building blocks of expertise could also be described as *editorial judgement* and they specifically point to journalists’ competence to decide on behalf of the audience.

Notions of objectivity, fairness and balance, as well as maintaining a clear boundary between facts and opinions are also widely shared professional ideals and signs of expertise among journalists across nations. For journalists, their expertise is something that separates them from others, making them unique. It is also strongly connected to the institution and media outlet they work for.

### *Duty*

An important part of journalists’ profession and identity is the thought that the profession has a wide societal duty and meaning. This feeling of responsibility is an important part of journalists’ work and identity. Örnebring (2013) writes that “the notion of a societal duty, whatever it may be, is very much alive in debates about journalism and media, and central to professional self-understanding.” Journalists often feel that what they do is unique and special since the responsibility of informing the public lays on their shoulders. This is a common notion across all nations.

The duty of journalists relies on the professional code of ethics. Keeping to these ethical codes and principles is a part of the collective professional system. The ethical codes are made manageable and carried out through particular practices, most centrally verification. These practices are a part of the identity construction.

### *Autonomy and institution*

Autonomy refers to self-governance within the profession, and the extent to which the profession is independent of other societal institutions, above all the state and the market. Some debate over autonomy takes place as it is arguable if journalism in commercial media enterprises can be autonomous from the market, or whether journalism in public service broadcasting can be autonomous from the state. In the same sense, it could also be argued whether fully autonomous news robots can be autonomous from the humans that developed it and vice versa.

Autonomy is most often operationalized as trustworthiness, and journalists often rely strongly on the media institutions as they guarantee a certain autonomy for journalism as a whole. At the same time, it is important for journalists to emphasize their individuality and to ensure that they are at least to some extent autonomous from the organizations that they work for.

Another way of categorizing these same notions and building blocks of professional identity is the five journalistic ideals (Deuze 2005): *public service* in which journalists are active collectors and disseminators of information; *objectivity* meaning that journalists ought to be neutral, objective, fair and credible; *autonomy* meaning that journalists must be autonomous, free and independent; *immediacy* meaning that journalists must be fast and have a sense of actuality; and *ethics* meaning that journalists must have a sense of validity and legitimacy.

For the most part, the journalists turn to these traditional claims and ideals when asserting their legitimate authority as professionals (Örnebring 2013). In media-anthropology these *media rituals* are defined as regular and schematic actions that upkeep a certain hierarchy and/or order. In media production and journalists' work *press rituals* play a role in both the representing and publishing of content, as opposed to *strategic rituals* that guide journalists' way of working. By using rituals journalists strive to enhance and ensure, both for themselves

and the audience, that their job is carried out in an objective and autonomous way. At the same time journalists also verify their expertise and thus strengthen their identity. Concrete examples of carrying out strategic rituals are: presenting divergent opinions and facts that support them; use of quotations marks; and writing news articles in an established manner answering questions what, who, when, where and why. (Sumiala 2010.)

When facing change, journalists are rarely passive recipients but instead they take an active role in their professions and professional identity construction (Caza & Creary 2016). This is understandable as professional identities are utilized to manage environmental and internal changes. The professional identity of journalists is flexible, and formable to a changing context, because its main purpose is to stay in power (Wiik 2010).

## 4. Methodology

As I needed to collect the journalists' first-hand experiences regarding their profession and how news robots have affected it, I decided to do an interview based study. This chapter explains in detail why qualitative research was chosen as a method, what kind of possibilities and limitations it has, and how these limitations were taken into account in this thesis. Following this, the respondents who participated in the study will be presented. In addition, the last sections will clarify how the interviews were planned, conducted, categorised and analysed.

### 4.1. Qualitative interviews

I determined that a qualitative interview study would be the most relevant way to gather the information needed. Another option would have been a quantitative research method that uses statistical forms of analysis, for example surveys, instead of verbal analysis. Yet I felt that in-person interviews give the respondents a possibility to answer the questions in their own words without given options. Thus, the answers of the respondents are also more natural and spontaneous in an in-person interview since they are spoken instead of written down. By gathering spontaneous answers which the respondents could formulate in their own way, precious information on who they view the topic was gained.

Designing and conducting the interviews followed Steinar Kvale's (2007, 35–36) instructions:

- Designing: Take into consideration all seven stages of the investigation, before interviewing.
- Thematising: Formulate the purpose of the investigation and the theme to be investigated. The *why* and *what* of the investigation should be clarified before the question of *how* (method) is posed.
- Interviewing: Conduct the interviews based on an interview guide taking into consideration own knowledge of the topic and interpersonal relation of the interview situation.
- Transcribing: Prepare the interview material for analysis, which generally includes a transcription from oral speech to written text.
- Analysing: Decide, based on the purpose and topic of the investigation and of the nature of the interview material, which modes of analysis are appropriate for the interviews.
- Verifying: Check the validity, reliability and generalizability of the interview findings.

- Reporting: Communicate the findings of the study and the methods applied in a form that lives up to scientific criteria, takes the ethical aspects of the investigation into consideration and provides the findings in a product.

#### **4.1.2. Pros**

One of the positive aspects of qualitative research is that it broadens the understanding of the investigated phenomena, and that it is a more naturalistic and less structured way to collect data (Alshenqeeti 2014). A qualitative interview provides a unique access to the world of the subject and it is a key venue when exploring the ways in which different people experience and understand their world (Kvale 2007, 9). The fact that each interview is unique and each question considers the knowledge of the respondent makes it possible for a qualitative research at its best to produce new, valuable knowledge. A qualitative research interview may develop scientific knowledge in the sense of methodologically producing new and systematic knowledge. (Kvale 1994.) It is also capable of disclosing important and often hidden facets of human and organizational behaviour (Qu & Dumay 2011).

The emphasis of a qualitative interview must be on how the respondent frames and understands the issue at hand. This means that qualitative research puts great interest in the respondent's point of view, and thus rambling or going off the topic is often encouraged as it gives insight into what the respondent sees as relevant and important regarding the topic. (Bryman n.d.) Because qualitative interview is based on human conversation, it allows the interviewer to modify the style, pace and ordering of the questions to fit the respondent.

Even though a single interview can hardly be replicated, different interviewers and respondents may come up with similar findings when following similar procedures. How these findings are analysed may vary from one researcher to another but Kvale (1994) argues that several interpretations of the same interview are not a weakness but a richness. He continues that one of qualitative research's privileges is that through conversation and negotiation meanings can be generated. Thus, it is a continual back-and-forth process between observation and interaction, description and interpretation, conceptualizing and theorizing rather than a linear route from hypothesis formulation to data collection, data analysis, and theory construction.

#### 4.1.2. Cons and how I addressed them

Despite its unique positive aspects, qualitative interview as a method faces some criticism, mainly from those who do not see it as a valid and reliable way of gathering information. Some argue that this is the case especially since both the interviewer and respondent may have incomplete knowledge or even faulty memory (Alshenqeeti 2014). To understand the limitations that qualitative research presents, I took into consideration some of the most notable and worthy criticism relevant to this thesis (Kvale 1994):

*Qualitative research is not trustworthy, but biased*

Objectivity as free of bias refers to knowledge that is reliable, checked and controlled, neutral, factual, and confirmable. When objectivity is defined like this it simply refers to doing good and solid craftsmanship, and to producing new knowledge which has been systematically checked and verified.

Because the in-person interaction of the interview might have impact on the results, the potential influence of interviewer bias deserves careful attention. This was taken into consideration both when planning the interviews and the interview questions and while doing the interviews. In planning the interviews, I considered in detail the formulation of the questions to make sure that the way a question would be asked would not guide or expect the respondent to answer in a certain way. As the interviews were conducted both in Finnish and in Swedish, the same detailed remarks were noted also when translating the questions from one language to another. To verify that my questions were as neutral as possible, I audited the interview guide with several journalism professionals and study colleagues.

Although a single interview can hardly be replicated, different interviewers and respondents may come up with similar findings when following similar interviewing techniques and interview guide from one interview to another. This is something I paid close attention to while doing the interviews and staying to the interview guide. Although the communication was more fluent with some respondents than others, I mainly kept to the original formulation of the interview questions, asking follow-up

questions when necessary. Only minor variation in the order of the questions needed to be done during the interviews.

*Qualitative research is not reliable, but rests upon leading questions*

Leading questions are usually perceived extremely negatively in both qualitative research and in journalism, but Kvale argues that the qualitative research interview is well suited for using leading questions. By asking leading questions the interviewer can check the reliability of the respondents' answers. Thus, contrary to popular opinion, leading questions do not have to reduce the reliability of interviews, as they may in fact enhance it.

To make sure that the leading questions I posed during the interview would enhance the reliability of my research, I used leading questions mainly when asking the respondent to specify something they had already said. For example, if a respondent describes a news robot as “loyal, trustworthy and a little helper”, the interviewer could ask if the respondent sees the news robot as a colleague rather than a tool. The number of leading questions was minimized in the interview guide itself to leave room for the respondent's own reflection on the topic.

*Qualitative research is not yielding generalizable results because there are too few subjects*

Science seeks to generalize both in order to predict and to control, and because it aims towards universal knowledge. In qualitative interview research, though, the number of subjects tends to be either too small to make statistical generalizations or too large to make penetrating interpretations.

Yet Kvale argues that in some cases a few intensive case studies may provide general knowledge. He continues that if assertions of generalization are based upon a strong theory, a few subjects may in fact in some cases be sufficient. These notions were considered when choosing how many journalists I would interview and what kind of theoretical framework would be used. I also took in notion that my aim is not to generalize results but rather to gain an insight to how a small group of journalism professional perceive news robots, and how the development of the technology might



affect their profession in the future. As the professional identity of journalists is experienced differently across the globe, trying to generalize these kinds of results would be nonsensical.

#### *Qualitative research is not valid, but rests on subjective impressions*

The most common definition of validity is expressed by the question “are we measuring what we think we are measuring?”. This question should be posed both when doing qualitative and quantitative research. When talking about validity, the discussion should go beyond a true versus false dichotomy, and see validation as good craftsmanship. As presented earlier, this was considered both when designing and conducting the interviews, and when categorising and analysing the answers. In order to achieve transparency and address the subjectivity also in the presentation of the results, the respondents’ answers and opinions are cited—with the respondents’ permission—with their names.

#### **4.1.3. Reliability and validity**

A study’s reliability relies on the consistency and trustworthiness of research findings, and it is often treated in relation to the issue of whether a finding is reproducible at other times and by other researchers. In social sciences validity in its turn refers to the issue of whether a method investigates what it is supposed to investigate (Kvale 2007, 122).

Because the meaning and validity of the results are not pre-given but constructed through the process of interviewing (Kuzmanić 2009), Kvale’s quality criteria was followed and considered when conducting and assessing the interviews to ensure this study’s reliability and validity (2007, 80). According to Kvale’s criteria, one way to ensure and enhance the quality of the interview is to make sure that the respondents answer the questions spontaneously in a rich, specific and relevant way. This is something that I found difficult to control during the interview situation as the respondents answered in varying ways. However, it is also something I was able to enhance by asking the respondent to elaborate on something they had already said. In addition, when going through the respondents’ answers, only those answers that provided relevant information were considered. Non-answers were not analysed and

neither answers that provided irrelevant information in relation to the topic of this thesis, such as detailed technical explanations of what kind of robots media outlets have currently under development.

When looking at Kvale's interview criteria, another important reliability and validity aspect is that the interviews are 'self-reported', meaning that they hardly require any extra explanations (Kvale 2007, 80). Considering that this thesis researches automated journalism and news robots, some background knowledge about the subject and of journalism in general is required to understand the context of the interviews. However, I wanted to try to make the interviews as coherent and clear as possible, and encouraged the respondents to explain things in a clear and understandable way. This also the reason to why I did not tell the respondents about my own knowledge on the subject as it may have caused them to explain things in a vague manner.

In addition to the aspects mentioned above, the criteria points out that the interviewer should also be able to steer the interview and keep in mind that an interview has a clear power asymmetry in which the subject and that the interviewer are not equals (Kvale 2007): the other one gets to ask while the role of the other is to only answer. The interviewer should also maintain a critical distance and test the reliability and validity of what the respondents say. As presented earlier, this can be done for example by asking clarifying and leading questions.

## **4.2. Respondents**

The Finnish and Swedish journalists were chosen as research subjects because the media scenes of Finland and Sweden are like each other. For example, freedom of expression laws, journalistic practices, and journalism's self-regulation go hand in hand. Also, when comparing with the Finnish (Journalistiliitto 2017) and Swedish (Journalist Förbundet 2017) ethical guidelines, and law based responsibilities and entitlements, similarities between these two countries are notable.

All in all, thirteen people were interviewed of which twelve work in media outlets as journalists, developers or supervisors. Six of them work in Finland and six in Sweden. In addition to these twelve, one Finnish postgraduate was interviewed. All the journalists

interviewed were at the time of the interviews working with news robots. The experience that the respondents had regarding news robot varied at the time of the interviews from 1 month to 2,5 years. Of the six Finnish journalists interviewed four work for Finland's national broadcasting company Yleisradio (Yle), one for Helsingin Sanomat which is the largest subscription newspaper in the Nordic countries, and one for Vasabladet, a regional daily newspaper covering the region of Ostrobothnia. Of the six Swedish journalists interviewed three work for Sweden's largest media outlet MittMedia, and three for the Swedish news agency TT Nyhetsbyrån (TT). The one postgraduate interviewed works on at the University of Helsinki on Immersive Automation research project that seeks to demonstrate a future news ecosystem based on automated storytelling. All in all, approximately 20 men and 10 women were contacted. For practical reasons the respondents were chosen in the order they answered the interview request. The respondents participating in this research were:

- Esa Mäkinen, Managing Editor at Helsingin Sanomat
- Aki Kekäläinen, Development Manager at Yleisradio
- Jarkko Ryyänen, Product Owner at Yleisradio
- Joska Saarinen, Journalist at Yleisradio
- Simo Kymäläinen, Web Producer at Yleisradio
- Jona Nyström, Journalist at Vasabladet
- Henning Johannesson, Deputy Sports Director at MittMedia
- Markus Sandin, Editorial Development Officer at MittMedia
- Mikael Tjernström, API Director at MittMedia
- Joakim Goksör, Journalist at TT
- Olle Lindström, Journalist at TT
- Mats Rörbecker, Journalist at TT
- Stefanie Sirén-Heikel, Postgraduate at the University of Helsinki

### **4.3. Designing the interviews**

In this qualitative research, I decided to use semi-structured interviews because it is a flexible and capable way of disclosing important and often hidden aspects of human and organizational behaviour. Semi-structured interviews have their basis in human conversation (Qu & Dumay 2011) allowing the interviewer to depart from the written schedule or guide that is being used and ask new questions that follow up respondents' replies (Bryman n.d.). Thus, the interviewer can modify the style, pace and order of interview questions to fit the respondent and to get the best possible responses. I chose to use semi-structured interviews

also because it easily allows the respondents to provide responses in their own terms, and in the way that they think and use language. (Qu & Dumay 2011.)

In designing the interview and the interview questions I took into careful consideration the criticism to qualitative interviews, laying special emphasis in designing open and leading questions, and in choosing how many journalists to interview. Even though the guidance for research projects based on qualitative semi-structured interviews is that eight respondents is sufficient (McCracken 1988), I decided to interview 12 journalists—six from Finland and six from Sweden—to get somewhat representative experiences from both countries and all together.

The interview questions were designed based on my research questions using Bryman's (n.d.) notion as a guideline: "Ask 'What do I need to know to answer each of the research questions?'" ". This means that as an interviewer I should be able to estimate what the respondent sees as significant and important in relation to each research question. This thesis' interview questions can be divided into the following categories (Bryman n.d.):

- Introducing questions: asking the respondent to tell, for example, their name, occupation and about their work history ("Please tell me about...")
- Follow-up questions: getting the respondent to elaborate his/her answer ("What do you mean by that?")
- Probing questions: following up what has been said through direct questioning ("Earlier you said that...")
- Specifying questions: getting more details on something the respondent has said ("What did you do then?")
- Direct questions: or yes-no questions that are perhaps best left until towards the end of the interview, in order to not to influence the direction of the interview too much ("Do you think that...")
- Indirect questions: or questions that cannot be answered with yes or no answers ("What do you think...")
- Structuring questions: leads the interview from one topic to another ("I would now like to move on to...")
- Silence: allow pauses to signal that you want to give the respondent the opportunity to reflect and amplify an answer
- Interpreting or leading questions: helps the interviewer in checking and clarifying that they understood correctly what the respondent said but also in checking the trustworthiness of the respondent ("Do you mean that...")

Keeping in mind my research questions, I divided the interview guide into different sections starting with introduction and small talk, continuing to background information. After that came the two most important parts of the interview where I asked questions that would provide answers to my research questions. The first of these two sections concentrated on asking questions regarding work in practice, and the second section in asking questions about feelings and perceptions. The interview then ended with a free word for the respondent and some questions regarding anonymity and other practical aspects. All in all, the interview consisted of 20 questions (see Appendix 1).

The interviews were done in the respondent's mother tongue – Finnish or Swedish. The interviews were recorded and transcribed, and the citations used in this thesis were translated to English.

#### **4.4. Conducting the interviews**

To get in touch with relevant journalists to interview, I contacted approximately 30 people. The first contact with all respondents was made via email. Some of the interview questions were sent to the respondents beforehand (see Appendix 1) via email so that they had time to find the answers to questions concerning for example years, and contemplate on some of the questions beforehand. The rest of the questions were withheld till the moment of interview to get spontaneous responses.

The interviews were made via phone or Skype in April and May 2017. Originally, I planned to do the interviews face to face but for practical reasons I decided to do the interviews on phone or via Skype. This change of plans made me concerned at first since I would not be able to interpret the respondents as well via the phone as I would be able to do in person. To understand better how telephone interviews differ from in-person interviews I did background research in how different ways of doing interviews affects the answers. The studies done on this subject show that respondents are more acquiescent, evasive, and extreme in their responses in telephone interviews than when they were interviewed face-to-face (Jordan et al. 1980). It is worth noting, though, that the problems related to conducting interview via telephone are not necessarily caused by the telephone per se but rather because much of

everyday telephone conversation is not a series of questions and answers (Gubrium & Holstein 2001).

When looking further into the subject I also found studies saying that there is only minor difference between in-person and telephone interviews, one of them being that in-person situations encourage more small talk, politeness routines, joking and nonverbal communication (Gubrium & Holstein 2001). Looking at the response distribution obtained from telephone and in-person interviews, almost no differences have been found (Herzog & Rogers 1987). Based on these results I concluded that doing the interviews via phone or Skype would not undermine my research results.

The interviews were made in the respondents' mother tongue—in Swedish for Swedish journalists and in Finnish for Finnish journalists—to minimize the possibility of interpretation mistakes and to make the respondents as comfortable as possible in order to get the most accurate and applicable answers. The interviews lasted from 20 minutes to 55 minutes. All the interviews were recorded for transcription with permission of the respondent.

#### **4.5. Transcription of the interviews**

To be able to easily categorize and analyse the interview results, all interviews were transcribed. When deciding on how specific of a transcription I would do, I took in notion that transcription is an interpretative process, where the differences between oral speech and written texts must be considered (Kvale 2007, 92). Since my aim is to concentrate on *what* is said rather than on *how* it is said, I decided to do a somewhat loose transcription that includes the core of the conversation and interview.

Repetition of words (such as *I – I think that – that umm*) was not transcribed and neither fillers (such as *hmm, aah* and *krhm*). The interviews were transcribed in common language and I noted unusual ways of saying different words only when they had special emphasis or meaning to them. The transcription does not include pauses, intonations, or emotional expressions like laughter and sighing. As the level and detail of transcription depends on the intended use of the transcript (Kvale 2007, 95), I felt that this kind of transcription was sufficient for this thesis.

Only one respondent asked to check any direct quotes that would be made on basis of the interview and transcription, and it was agreed that if any direct quotes using the respondent's name would be used, I would send these to be checked.

## **4.6. Categorising and analysing**

There is no standard method or right way to get the essential meanings and deeper implications of what is said when analysing qualitative interviews. In qualitative interview research, the researcher is the big interpreter and maintains an exclusive privilege to interpret and report what the respondent really meant. (Kvale 2007, 14–15.) Yet there are some common approaches to the analysis of interviews. Often, they are grouped into analyses that mainly focus on the meaning of what is said, and analyses that mainly focus on the linguistic forms whereby meanings are expressed. In addition, there is an analysis that is a combination of multiple forms of analysis, and a theoretically informed reading of the interviews as a significant mode of analysis. (Kvale 2007, 104.)

The interviews done for this research were categorized and analysed with the help of content analysis and interview analysis as bricolage.

### *Content analysis*

In content analysis, the interviews or transcriptions are coded into categories. This makes it possible to quantify how often specific themes were addressed in the answers. This in its turn makes it possible to compare and correlate the various categories with each other and other measures, for example, previous results. (Kvale 2007, 105.)

All in all, I divided the respondents' answers into ten categories based on the topics and themes that the answers covered. The categories are: time before news robots, change in attitudes, how news robots are presented in media outlets, quality of news articles, quantity of news articles, added and decreased value, perceptions of professional identity, what news robot can do, whether news robots are a threat, and human advantages.

Another option would have been to divide the answers according positive and negative adjectives used, or according to the interview questions but I did not see these options relevant or even sufficient for this thesis since all the respondents answered the questions in such diverse ways, contemplating on various aspects of automated journalism.

### *Analysis as bricolage*

Bricolage refers to mixed technical discourses where the interpreter moves freely between different analytic techniques. The researcher may, for example, read the interviews through to get an overall impression, and then go back to specific interesting passages to perhaps count statements indicating different attitudes to a phenomenon. (Kvale 2007, 105.) The interpreter can also work out metaphors to capture key understandings, attempt to visualize findings in flow diagrams, and so on.

Using this tactic of meaning generation, I was able to distinguish and bring out connections and structures from the interviews that would otherwise have gone unnoticed. An example of this is the possible denial that journalists have regarding news robots, their abilities and their own skills. As stated earlier, many respondents talked about the same topics but in different contexts. To be able to generate an understanding of these divergent answers, I had to deconstruct the interviews and break free from the original interview questions.



## 5. Findings

The findings of this thesis are presented in this chapter according to the ten themes to which the respondents' answers were categorized into. There is no or only marginal correlation between how different respondents answered different interview questions.

### 5.1. The good old days?

“I did my first ‘gigs’ as a reporter when I was 14 years old. At that time, it was my job to write the sport result news. I was the robot.”

- Henning Johannesson

Looking back in time to how journalists and media outlets worked before news robots, many respondents say that they would not want to return to the old days. In fact, they feel that news robots should and could have been taken into use much earlier. In their view, much of the tasks that they did as starting journalists was something that a news robots could have done and that it would have been a joy to get rid of the repetitive and boring job already back then. They continue that much time has been wasted in holding on to traditional ways of doing journalism.

But not all agree. Some of the journalists interviewed feel that the way things were done earlier was good enough for then. Many of them think that back then the media scene, the time and the technology was not ready for news robots, and in addition argue that it was a matter of resources – that there was no other option.

### 5.2. Attitudes then and now

When asked to look back in time to how the respondents perceived news robots before starting to work with them, the answers vary from positive to neutral to negative. About half of the respondents say that they thought the coming age of news robots to be very exciting, and they saw it filled with opportunities that could and should be further experimented on. Meanwhile others remember that they did not think much about news robots and that they did not know enough about its technology to form an opinion, thinking it to be something very complicated. The rest of the journalists interviewed said that their perception regarding news

robots used to be very suspicious or that they thought news robots to be something that they would not be able to make use of. Some even viewed them as ludicrous.

Before starting to work with news robots, the main fear of journalists dealt with how news robots would affect news articles. The respondents expressed no concern over their profession or professional identity. A couple of the respondents explain that their only fear was that the news articles would be spiritless and monotonous.

”I thought that it would be impossible to make news robots so good that they could replace a journalist. I thought that news robots were something that would not help us.”

- Henning Johannesson

The respondents were also asked to reflect on how they feel about news robots now, and to describe a news robot. A couple of journalists, who had a positive approach from the start, still felt the same. But what is remarkable is that almost all the journalists who had a negative or neutral opinion to start with had changed their opinion to positive. They describe that they were convinced by news robots’ fast development and simply by the experiences they have gotten from working with automated journalism. For example, one journalist explains that he got excited about news robots when he understood how much data already exists and how the news robot and media outlets can use to create more and better content.

Only two journalists were still sceptical or neutral in their opinions even after working with news robots. One of them says that, in his belief, a journalist would bring more value to the news articles than a robot does.

When comparing the respondents’ descriptions of the news robot to their attitudes, clear similarities were noted as those who have a positive view used positive or neutral adjectives vice versa to those who have a negative view about news robots. Most of the respondents feel that news robots save both time and money, and that the big steps in the development of automated journalism are still ahead. They see them as a program that utilizes data and produces text based on it, and as something that encourages or forces journalists to do their job better and more conscientiously.

”The news robots we have today are a bit like rabbits in greyhound racing. The difference is that these rabbits are not that fast. Their function is to lure even the slowest and laziest individuals into the race. It is almost like a group of track rabbits saying ‘come, you can do it, let’s start with some light jogging’.”

- Jarkko Rynnänen

Again, opposite and interesting opinions emerged as two journalists—of whom the other one was sceptical and the other one optimistic from the start—said in their descriptions that after working with the news robots they do not perceive them as “anything special”. Rather than explaining how they perceive news robots now, they explained that the real threat to journalism is the changing media environment of which the news robots are only a fraction of.

”We are still experimenting with how to get things to work online and in social media. Compared to previous decades the change is huge and that’s the thing that confuses our journalists. When one news story must work both in television, radio, website and social media, news robots are one of their last concerns.”

- Simo Kymäläinen

### 5.3. A tool or a colleague

“We do not use the words *news robot*. We talk about automated journalism.”

- Esa Mäkinen

Half of the journalists interviewed experienced that the discussion about news robots is challenging and on the wrong tracks since news robots are defined in so many ways. The respondents pointed out that people should always consider whether they are talking about automated journalism, algorithms, AI or news robots because the terminology used affects both the understanding and views regarding news robots. One of the respondents described how talking about a robot creates a totally different response than talking about an algorithm. The majority agrees with this saying that using the words news robot and talking about it as something mysterious causes unnecessary hype around the phenomenon when in reality news robots are only a tool among others.

Yet many media organisations give human names, such as Valtteri, Voitto, Rosalinda and Ronja, to their robots, making them more human than they are. When discussing why there is a contradiction between how the news robots are perceived and how they are talked about, one of the respondents explained that most likely the humanisation of robots tracks back to the programmers working with them.

“If you’ve been a part of a news robot’s development team, it is understandable that you create a certain kind of connection with it. It is easy to talk about the robot using its name, feeling that it is a part of the team.”

- Stefanie Sirén-Heikel

This is something that a couple of respondents, who work with developing the news robots, seem to agree with.

“Our news robot Voitto is not a machine. Of course, the technology in it is AI and in the end it is a robot, but everyone here is talking about Voitto. Giving it an identity—a picture, a name and a signature—is all a part of creating the user experience. In many ways, we pay more attention to that than to the actual coding.”

- Aki Kekäläinen

They continued that they have worked hard to be able to present their news robot as one of the journalists, working on news articles just like anyone else in newsroom. They said that they aim to make the news robot likeable, wishing that it would appeal to people on an emotional level. They also hope that the news robot would not be seen as a threat, and say that journalists should not have to pay attention to it no more than they pay attention to other journalists.

The effect of terminology and semantics around news robots is truly something that has an impact as almost all the respondents brought up this issue in one way or another. But even if the words used affect how journalists perceive news robots, a third of the respondents pointed out that it does not reduce the journalists’ concerns over whether the news robots will eventually overrun them. This concern is the same regardless of the news robot been presented as tool or as a colleague.

## **5.4. Increased quality of news articles**

According to the respondents the news robots have enhanced the quality of news articles in two ways: the first is the increased amount of an interesting, human input and the second a decreased number of inaccuracy in facts.

Twelve out of thirteen respondents said that because the news robots have taken over the majority of the “boring, routine tasks that require only copy and paste skills”, the journalists are able to shift their focus from statistics to analytics. The respondents gave several examples on this with some of them explaining that now everyone—both the news robots and the

journalists—are able to concentrate on tasks that they do best: the robot on gathering and processing data, and the journalist on doing interviews and finding the human angle of the story. This means that instead of being on alert for the results of for example a sports game, journalists can concentrate on analysing those results or do an interview.

“The work of journalists has changed from doing manual information gathering and writing to the work of an analytical editor, interpreting and understanding the feelings and meanings behind these events and figures.”

- Esa Mäkinen

Other respondents continued that thanks to news robots, journalists are now able to go ‘all in’, selecting a better and more in-depth angle than earlier. They feel that they can trust the news robot to do its job, which gives journalists an opportunity to concentrate on the things only they can do. The journalists also feel that—at least for now—the division between what a news robot can do and what a journalist can do is so clear that there is no confusion over who does what. All in all, respondents feel that news robots have eased the workload of journalists as automated journalism is able to handle the most simple, routine tasks of the news desks. They explained that especially journalists, who used to work with the tasks that the robots do today, are pleased with the change.

Again, one interesting deviant view stood out from the answers. One journalist explained that besides that the robot has somewhat changed how he works, he feels that above all it has changed how other people—both other journalists and the audience—see his job. He explained that besides of being responsible of the work that he does himself, he is also partly responsible for the work the robot does and that, especially in the beginning, was something that others paid a lot of attention to.

The second aspect that has increased the quality of news articles is the notion that a news robot makes fewer mistakes than journalists. This is something that, in the opinion of the respondents, has also decreased the amount of stress as journalists do not have to worry about getting the right results published fast.

”Because of the increased requirement for speed, journalists did not pay much attention to the quality of the articles. And that’s where mistakes happen.”

- Jarkko Ryytänen

The decreased amount of stress plays a significant role in the lives of especially sport journalists and journalists working in evening and weekend shifts. For example, in MittMedia sports journalists working in evening shifts had earlier on a big responsibility in making sure that all articles were published on time and with correct information while at the same time working on sport result articles. But with the help of the news robots, that are able to publish the new articles autonomously, the journalists do not have this responsibility any longer. This same stress and error decreasing factor was recognized also in Yle during the municipality elections. While the robot could produce news articles on the election results in practically no time and with zero mistakes—a task that would be difficult for any journalist as Finland has more than 300 municipalities—the journalists could concentrate on doing interviews and analyses.

About half of the respondents pointed out that even though news robots are relatively trustworthy, from time to time also the automation makes mistakes. However, they explained that these mistakes are caused by a human error in coding or providing information – not by the robot itself. As the mistakes are easily corrected both in the article and in the robot, the respondents do not view these occasional hiccups as a problem.

## **5.5. Increased quantity of news articles**

Beyond that news robots have affected journalists work in practice, the news robots also affect journalists' use of time. Most of the respondents did not specify how big of a time saver news robots are for them or their media outlet, but almost everyone agrees that the impact is significant. Only one journalist estimated that a news robot saves approximately 30 minutes per week per one journalist, continuing that even though it does not seem like much it makes a substantial difference when looking at the whole news desk and everyone working there.

When asked about how the journalists use the time they save, the answers were divided into two: either journalists use the time to do basic articles that the news robots do not have the data to do, or they spend the time working on stories that they have always wanted to do but never had the time. An example given by a third of respondents was that journalists can now also cover more niche topics that have not been covered before.

According to many respondents this versatile selection of articles is the most important benefit of news robots, as both the robots and the journalists can concentrate on news and stories that would have otherwise been left undone. One journalist explained that, for example, stories on lower division football have gone under radar till now but with the help of news robots news desks are able to provide their readers with a bigger perspective and more news than ever before.

“Journalists work as many hours as they did earlier, but in that same time they are now able to produce significantly more news than earlier.”

- Esa Mäkinen

## 5.6. Added and decreased value

Based on the respondents' answers, the role of a news robot and its consequences can be divided into two groups. Firstly, about half of the respondents said that news robots increase the overall value of media outlets', newsrooms' and journalists' work since it provides the audience completely new angles and information. A couple of the journalists clarified that this means, for example, that news robots help journalists in finding stories in data that would otherwise have gone unnoticed.

“Finding patterns between football matches played during a whole season is a difficult and time-consuming job for a journalist to do. But a robot can do it in no time, finding information on for example continuity and similarities, something that the journalist would never have even thought of.”

- Henning Johannesson

In addition to finding totally new angles, news robots can also produce articles that media outlets earlier bought from outside – articles such as weather reports. A handful of the respondents said that news robots, in fact, do a lot of additional work that humans have never done. This is also one reason why they do not feel threatened by news robots, as the news robots are not out to take the journalists' jobs but only to add value to what the journalists and the media outlets are doing.

Yet some remarks on the downsides news robots were done as well. A couple of respondents pointed out that while news robots can collect more information on for example lower divisions sports or finance, they at the same time erase what little exchange of information journalists used to have with their informers. This is something that the respondents feel to be

a clear disadvantage in the work of news robots – they cannot collect off-the-record information like a journalist can. At the same time, it makes the newsrooms very dependent on information provided by the audience and social media regarding, for example, information about an accident that happened during a football match.

“The decreased amount of human interaction is something we need to pay more attention to. Working with the news robots means that the journalists do not have the same knowledge and information that they used to have, and this is something we see as a very negative development.”

- Henning Johannesson

Respondents continued that even though a news robot could be perceived as a journalist among others, the articles it writes do not contribute as such into maintaining and improving the brand of the media outlet. Instead, in their opinion, the value of the media outlets lays on long-form articles that journalists write and that for now the work of the robot is only a bonus.

## **5.7. Journalists and professional identity**

As presented earlier, some journalists believe that the biggest challenge in journalism is the changing media scene in which news robots have their own role to play. But even though news robots affect journalism and the work of journalists, the respondents do not see them affecting their professional identity. This view is mainly grounded on the thought that the difference between a journalist and news robot is still too great for news robots to have any real effect on how journalists view themselves.

Yet some respondents are confident that even though the news robots do not seem to affect journalists' identity, they do. This is something that especially Stefanie Sirén-Heikel explained in detail: that a journalist's profession is very different from other professions. Namely, in journalism the definition of the profession and thus the definition of identity is not as clear and the construction of professional identity rests largely on the work practices.

“Basically, anyone can be a journalist. You do not need a degree or a certificate to do that. This is the reason why the profession and professionals are defined by practices. Thus, also the professional identity is connected to the practices and it is affected when the tasks of a journalist get done by a news robot.”

- Stefanie Sirén-Heikel

A couple of others agreed with her saying that it is an unpleasant feeling to know that a machine can do what a journalist can, only faster and better. They believe that this will affect



journalists' professional identity which will again in its turn affect decision making and choosing of journalistic angles.

## **5.8. A possibility**

Many of the respondents had difficulties in evaluating how news robots will look like in five years' time and how they will affect their work in future. Some found this challenging because they believe the development is so fast that it is impossible to predict the future. Meanwhile others said that their lack of knowledge kept them from even guessing what the future would be like.

Among those who assessed the future of news robots the most common prediction was that what can be automated, should and will be automated. The respondents believe that news robots will become every journalist's "little helpers" assisting journalists, for example, in finding the correct information, data, contacts and so on. A couple of the journalists continued that besides helping journalists working on news desks, news robots would be especially useful to investigative journalists and journalism. But while others believe that news robots will help journalists, some of the respondents think that even more advanced news robots will be developed. In their view, these news robots will be totally autonomous and able to produce news articles without templates. They continued that in the long run news robots will even be able to learn and develop by themselves.

What seems to be clear to all the respondents is that news robot will become more common and that there will be many kinds of news robots that will be able to handle for example unstructured data or moderate online comment sections. One respondent pointed out that news robots could even be coded to do A/B testing of, for example, headlines and other segments of news articles to see what works best.

"In seconds, a news robot could generate several headlines for different platforms, test them and analyse what works best and where. Above all, the news robot could learn from this and, who knows, maybe in five years we will be the ones taught by a news robot."

- Aki Kekäläinen

## 5.9. A threat

A little less than half of the respondents said that the answer to the question “do news robots threat journalists’ job?” is two-part: in the short run, no, but in the long run, yes. They explained that when news robots will be able to do most of the things that journalists do now, there are simply no reasons for media outlets to hold on to journalists. They see two milestones in attaining this. The first one is when news robots can generate text that is equally fluent as human written text, and the second one is when news robots are able to produce content that is equally interesting as human produced content. Some respondents believe that this kind of future will be avoided especially in the Nordic countries owing to the relatively small language groups, while others see the problems regarding different languages merely as a speed bump instead of a roadblock.

When looking to the future the respondents’ answers are clearly twofold. A majority emphasized that news robots are a threat to journalists’ job. One respondent pointed out that, in fact, the effects are already showing among freelance journalists since news robots are now doing the work the freelancers used to do, for example, reporting sports results. Meanwhile some respondents emphasized that even though the coming change is unwelcome news for journalists, it is good news for journalism.

“I hope that news robots challenge journalists to think what journalism is and whether they are truly in their dream job. I mean, if you are doing a job that can be taken over by a robot, are you really doing journalism the way you should or would like to do it?”

- Jarkko Ryyänen

## 5.10. A denial?

Even though many the respondents are aware of the possibilities and changes that news robots bring, some highlighted throughout the interview several human qualities that “news robots cannot replace”. In their view, such qualities are the capability to do interviews, to understand cause-effect-relations and feelings, and the skill to create elements of surprise. For example, one respondent described how doing interviews and turning them into quotes is such a complicated task that it is doubtable if news robots and AI are ever going to be even equal to journalists. According to the respondents, another example on human qualities that news

robots will have difficulties in reaching or adopting is the skill to imagine and feel. As one respondent described it, it is easy for a human to be fascinating – for robot it is not.

These respondents believe that they will be able to keep their jobs if they always do their best and are able to do something that a robot cannot do, arguing that there are many things that still require human discretion. Based on the differences between journalists and news robots, the respondents feel that automated journalism does not pose any real threat now or in the future for those journalists who want to develop themselves and their skills. But as it is already now possible for AI technologies to understand speech and to turn it into text, the question remains is these views are based on ignorance, consolation, or denial.

## **6. Conclusions**

The conclusions of this research are presented in this chapter. Firstly, the findings will be reflected in relation to the research questions and previous research results, and after that analysed within the theoretical framework. Lastly some discussion around the topic will be presented as well as suggestions on further research.

Even though this thesis concentrates only on writing journalists working in newspapers and/or news agencies, the effects of news robots and the findings of this study are, to some extent, applicable also to tv and radio reporters, photo journalists, freelancers and non-journalistic media platforms.

### **6.1. Something old, something new**

The findings of this thesis are in line with previous research results and supported by remarks made from them. As previous findings, this thesis too concludes that news robots free journalists from doing repetitive and routine jobs, and thus allows them to concentrate on doing interviews, analysis and in-depth news stories. Another finding similar to the previous research is that news robots are perceived both as a mere tool among others and as a threat trying to take over the journalist's job. Other identical conclusions show that news robots save both time and money, and that some journalists believe themselves to have insuperable skills that a news robot can never acquire.

However, some of this study's findings are new and have not been pointed out in earlier research. The most important of them is the notion that news robots make it possible to produce never-before-seen news articles with totally new angles, and that news robots increase both the overall quality and quantity of news articles. In addition, this study shows that merely working with news robots has a remarkable impact on journalists' attitudes regarding news robots, changing their views from neutral and negative to positive. This thesis' findings also show that news robots decrease human contact between journalists and their informants. The findings further imply that journalists have somewhat ungrounded hopes regarding the future of news robots and journalism, believing that automation will never surpass journalists in doing journalism.

Based on these findings, the answers to the research questions are:

- *How do news robots affect journalists' working methods?* Journalists use the same working methods as before but, due to news robots, they can shift their focus from doing repetitive tasks to doing interviews, on the field work and analyses.
- *How do news robots affect journalists' use of time?* News robots give journalists significantly more to work on news stories that would otherwise have been left undone, or on the kind of news stories that could not have been done before.
- *How do news robots affect the quantity and quality of news articles?* News robots increase both the quantity and quality of news articles as both news robots and journalists can produce more articles with less mistakes.
- *What kind of changes has there been in journalists' attitudes towards news robots?* With a few exceptions, working with news robots change journalists' attitudes from neutral and negative to positive.

## **6.2. A change from statistics to analysis**

In the debate about journalism and its change, technology is often seen as an autonomous agent which develops according to its own inner logic and then causes this or that in journalism. Technology is also often placed outside journalism. (Heinonen 1999.) But as news robots have already made their way into newsrooms, their effects are now taking place in journalism and journalists' everyday work. While doing their job journalists want and need to be perceived as crucial by the public in providing factual, reliable, timely, and meaningful information (Singer 2015). But what happens when a news robot can provide the audience news with the same attributes? Literature and previous research suggests that new media technologies challenge one of the most fundamental values of journalism – the professional journalists being the ones who determine what the public sees, hears and reads about the world (Fulton 1996 and Singer 1998 in Deuze 2005). And as news robots are already able to produce news articles autonomously, this role previously reserved only to journalists is changing, and so are the values, strategic rituals and identities attached to it.

The findings and conclusions of this thesis show that it is difficult for journalists to recognize ongoing changes in their professional identity as many of the respondents said that news robots do not affect their identity. However, a change has already started to take place in journalism practices and thus also in professional identity.

The building blocks and core values of professionalism and professional identity are based on the thought of *public service*, *objectivity*, *autonomy*, *immediacy*, *ethics*, *duty* and *expertise*. These are upheld by practises such as presenting divergent opinions and facts that support them; use of quotations marks; and writing news articles in an established manner. Out of these core values, news robots today challenge the parts of professional identity that are based on *public service* (collecting and distributing information), *objectivity* (neutral, fair and credible information) and *immediacy* (fast and actual information). This is because a news robot can collect more information in shorter time than a journalist could ever do. As one of the respondents articulated “It is useless to compete with a news robot. It will always be faster than you.” A news robot is also able to create more accurate information based on the gathered data, and they can also produce credible news articles faster than journalists can. Regarding these aspects, journalists are underdogs to news robots.

However, it is debatable if a news robot challenges *autonomy* as a building block of professional identity. Even though the news robot itself would be autonomous in producing the news articles, one should always take into consideration that—at least for now—news robots are not independent from their developers and the human generated technology. Thus, journalists are still in control of autonomy.

Meanwhile, it is quite clear that *ethics* is something that news robots have not adopted yet as it is extremely difficult to code and teach to a machine, and thus ethics remains—at least for now—one of the most important aspects in constructing professional identity. In addition to ethics, a journalist's *writing skill* is an aspect that the news robots have not yet been able to overtake. This is something that was emphasized by many respondents throughout the interviews. As the journalists are no longer able to pinpoint information gathering and objectivity as superior professional skills, they turn their focus on writing intriguing and surprising articles – something that is difficult to achieve with a robot that functions on templates. As long as news robots are not able to generate understandable and fluent language by themselves, journalists have an upper hand in creating divergent articles that include quotations, facts and feelings.

In conclusion, news robots are already now challenging and changing the professional identity building blocks. As the technology develops further the identity construction of journalists will continue to undergo dramatic changes as bigger and bigger pieces of journalists' core tasks are transferred over to a news robot. At the same it is likely that journalism and journalists will produce new core values according to which the identity and profession in build on in future.

Based on the findings of this study, the theories on professional identity and the development of news robots, journalists' professional identity will in near future lay mostly—if not totally—on ethics and on skilful writing. As one of the respondents pointed out “In the future we will no longer compete in who is the fastest. We compete in who is the best writer.”

### **6.3. Discussion**

In her doctoral thesis, Jenny Wiik (2010) writes: “Does it matter who the journalist is? If it is a man or a woman? Blue or white collar? The answer is yes – and I will explain why. A certain social disposition brings a certain set of opinions and attitudes.” But when the journalist is a news robot, there are no opinions and attitudes. There are only effects – on journalism and journalists.

This thesis wishes to answer questions regarding the use of new robots, and how they change the practices and attitudes of writing journalists working in newspapers and/or news agencies. But as always, describing the influence of an ongoing technological development is a delicate task (Heinonen 1999), especially when investigating a phenomenon that has taken place in newsroom only a couple of years, months or even weeks back. Yet I feel that doing an early research on a much-debated subject gives valuable information on early attitudes, practices and impacts, providing a chance for further research to reflect on this thesis' results. As stated in the aim of the thesis, this thesis' results provide media outlets, developers and journalists valuable information on what should be taken into consideration regarding implementation of news robots now and in the future.

When judging the findings and conclusions of this thesis, it should be however considered that this thesis addresses journalism and journalists only as writers even though journalism

spans over many different occupations, tasks and publishing platforms. It is also worth noting that even though the characteristics of journalists are largely similar worldwide (Weaver 1998 in Deuze 2005), the professional roles of journalists are seen quite differently around the globe and that perceptions of journalism's core values and professional identities differ considerably worldwide (de Bruin 2000). Thus, this thesis and its results should be considered only in relation to a Western media scene.

## **6.4. Further research**

Even though the first news robots were taken into use more than ten years ago, the scope of studies done on automated journalism is still quite narrow. This, of course, means that there are many research topics yet to be covered regarding automation of media scene. One of the most important of them is the difference between what journalists regard to be important as opposite to what the audience's opinion is. This thesis concludes that in the future, media outlets and journalists will compete in who the best writer is but what is not in the scope of this study is who gets to decide the criteria of skilful writing. Who judges whether journalism is good or bad: the producers or the consumers of any given media? A journalism cliché is that the audience gets what it asks for but with news robots changing the whole media scene, also the needs of the audience are undergoing changes. This leads to questions such as what kind of content is interesting, for whom and on whose terms?

Another interesting topic is the fact that the difference between news, media and communication has started to fade out. Even though these terms still have clear and explicit meanings to journalists, the audience might be more interested in the benefits than the terminology and theories. It may in fact be that while journalists cling onto professional practises in order to maintain their position and legitimacy, they end up serving themselves instead of the public. Thus, the subconscious self-preservation mechanisms of journalists might be based on practices that have no stand in tomorrow's world.

The undergoing change will affect both the quantity, quality and nature of a journalist's' job. Same kind of effects and changes are presented also by augmented reality. As, for example, virtual glasses and holograms are becoming more and more every day gadgets and tools



instead of science fiction inventions of the future, automation and AI in journalism need to take huge leaps to keep up with the pace of development.

As news robots are changing the reality of journalists and newsrooms, besides looking at how journalists experience the change, we need to also ask the unpleasant questions of whether it really matters what the journalists think. Thus, an interesting and much needed research should consider how journalism ought to change in order to serve the public to its best ability instead of trying to protect the work of the journalists. This, in its turn, leads us to ponder over how automation will change—not only journalism and professional identity of journalists—but the whole media scene. Interesting questions are for example if there will even be a media in the sense that we understand it today; if media will simply be an implemented part of everyday life, everywhere; and whether news robots will have the same kind of brand and value as journalists and media outlets have today?

This research and its results are looking only a couple of years into the future providing a starting point to ease the implementation of news robots into newsrooms. As automation and especially AI develops further, the focus of coming research ought to shift from nowadays journalists to future's media and public. Even though we are not able to do qualitative or quantitative research on the what is yet to come, we can and should strive to predict it.

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## 8. Appendix

### Appendix 1: Interview questions in English

Questions marked with cursive were sent to the respondents via email before the interview.

Introduction and small talk: 5 minutes

Background questions: 4 minutes

- Name, age, professional background.
- *When did you start working with news robots?*
- *When did your media outlet start using news robots?*
- *How often does your media outlet use the news robot: daily, weekly, monthly?*
- *How about you?*

Questions concerning work: 20 minutes

- What do your tasks include in practical terms?
- Do you like your present job?
- *How has the news robot affected working methods: What is new and what is old?*
- *How has the news robot affected timewise: What takes more time and what less?*
- How do you use the extra time? / What do you no longer have time to do?
- *What is the biggest change that the news robot has had on your work?*
- What about smaller but important ones?

Questions concerning feelings and attitudes: 25 minutes

- What did you think about news robots before you started working with them?
- When you look back at how you used to work, what do you think about it?
- How do you feel about the changes caused by the news robot?
- Has your own perception of a journalist's work changed after you started working with news robots?
- *Has the news robot affected your professional identity? How? / Why not?*
- If there has been a change in your perception regarding your work/professional identity, what do you think has caused it?
- How would you personally describe a news robot?
- How do you think news robots will affect your work in the coming 5 years?

Respondent's own input: 5 minutes

Finishing questions: 1 min

- Do you wish to be anonymous?
- Can I mention the media outlet you work for?